

Introduction: Special Edition on Energy Security

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Introduction to the Special Issue

Six years after the terror attacks on September 11, 2001 the energy sector of both the industrialized and developing countries is still very vulnerable:

- The oil, gas, and petrochemical industries face numerous security threats;
- The energy supply is increasingly dependent on oil and gas imports; and
- The world's most significant sites of oil and gas exploration and production are located in increasingly politically unstable locations, such as Algeria, Indonesia, Iran, Iraq, Libya, Nigeria, Russia, Sudan, and Venezuela.

The international energy market has always rested on the possibility that major market participants might be required to use force to defend or manage its operation. The prospect was made plain even before the end of the Second World War, when Franklin Roosevelt took it upon himself to guarantee the territorial integrity of Saudi Arabia, by way of securing its cooperation in the orderly production of oil in line with American requirements. The energy market has never been immune to political and strategic influence. Oil has been used as a “weapon” in the past, and its price (along with that of natural gas) is reflective of a range of political pressures to which a perfectly efficient, strategically agnostic market would be indifferent. Nevertheless, the uncoerced, non-violent interaction of buyers and sellers has been the primary determinant of how energy resources have been produced and consumed throughout the period when those resources have traded freely in global markets—roughly since the final unraveling of European empires, and the emergence of the United States as a net importer of oil.

If this situation were to change, such that the strategic interactions of governments and other contestants for political power were to prevail over the commercial interactions of buyers and sellers, a great deal else would change as well. It is thus reasonable to ask who, among present-day occupants of the international stage, would like to see a great deal changed, to which the immediate answer would obviously be the ramshackle assemblage of rogue states and revolutionary movements whose machinations consume such a disproportionate share of time and attention from the defense establishments of the world.

As a consequence, energy security looms large in the strategic planning of advanced societies in part because, to the extent that it holds out some prospect for the resumption of major interstate war, its requirements make it easier to justify cherished force structures and budgets. Yet military

planners and civilian strategists are also inclined to point to the potential threat that terrorists and other disenfranchised groups pose to global energy markets; and indeed they have good reason to do so. As noted by David W. Hamon and Arnold C. Dupuy:

The vulnerability of the industrialized world's energy infrastructure has been an international security concern for the last several decades. But in recent years energy security has taken added significance as the need for petroleum products has grown, and the sources of these products have shifted further from the OECD states to unreliable or unstable regions, primarily in the Former Soviet Union (FSU) and the Greater Middle East (GME). Indeed, the last few years have only highlighted this vulnerability, such as Russia's varied disputes with her neighbors, militant activities in Nigeria and the general upswing in Islamic radicalism and hostility toward the West. The next 'hot war' or global conflict of cold war proportions may be over energy and the broader impact that industry has on the international economy.

In the Feature Article section of this special edition of Strategic Insights, we present some high-level observations and analyses of the strategic challenges of energy security, including:

- [The Militarization of Energy Security](#) by Daniel Moran and James A. Russell;
- [Security of Energy: The Conflict after Next?](#) by David W. Hamon and Arnold C. Dupuy;
- [Energy Security or a New Globalization of Conflicts? Oil and Gas in Evolving New Power Structures](#) by Uwe Nerlich; and,
- [The Middle East: Petroleum Supply Security or Political Stability?](#) by Naji Abi-Aad.

Securing Energy Industry Infrastructure

The industry has extensive experience with ensuring operational safety, managing natural catastrophes and prevention of malicious damage. However, the increasing sophistication of global terrorism represents a new challenge.

Since the continued success of the global economy depends on a reliable and timely supply of energy products, minimizing security threats to this industry is of uttermost importance to nations worldwide. Security threats can result from disgruntled staff members, organized crime, pressure groups, cyber hackers, pressure groups, national and international terrorists. The areas under threat range from exploration and development security to pipeline security, maritime transport security, to protection of the product distribution and retailing sector.

The PETROSEC/SEIF-CV 2007 Conference held on September 16–19, 2007 in Salzburg, Austria, addressed security and supply-related issues, such as:

- Motives and profiling of terror groups willing to and capable of carrying out attacks on the petroleum supply chain and its facilities;
- Accessibility of technology and know-how for terror groups;
- Threat scenarios for the exploration industry, transport sector, and refineries;
- Consequences for society in case of a major terror attack on the oil- and gas sector;
- Adequacy of protective measures currently available in the oil and gas industry;
- Innovative scientific and technical solutions, as well as legal and operational requirements to strengthen the physical protection of the petroleum supply chain against terrorism;
- Links between safety and security of the petroleum supply chain;
- Security risk assessment throughout oil/gas fuel cycles; and
- Status in trends of risk-informed regulation.

The purpose of this joint conference was to promote a dialogue among all different stakeholders in the fossil energy sector: utility operators, managers, representatives of the security and regulatory community, and researchers. It was possible to reach consensus regarding further harmonization needs on criteria and methods related to safety and security of the oil and gas industry, and to propose key messages for further policy or research development on a European/international level.

In the Supply Chain and Infrastructure Security section of this special edition of Strategic Insights, we present several additional papers from the 2007 Petrosec Conference on the unique challenges of securing the petroleum industry's infrastructure, including:

- [Security Risks to the Oil and Gas Industry: Terrorist Capabilities](#) by Friedrich Steinhäusler, P. Furthner, W. Heidegger, S. Rydell, and L. Zaitseva;
- [Integrated Security Concept for the Oil and Gas Industry](#) by P. Furthner and Friedrich Steinhäusler;
- [Scenario Development in Oil and Gas Management: "Envisioning the Future" by Means of Analytical Techniques](#) by James David Ballard and Fred C. Dilger;
- [Severe Accidents in the Oil Chain with Emphasis on Oil Spills](#) by Peter Burgherr and S. Hirschberg;
- [A Guideline: Using or Creating Incident Databases for Natural Gas Transmission Pipelines](#) by Achim Hilgenstock;
- [Gas Analytical Technologies for Physical Protection of Oil and Gas Objects](#) by Vladimir Gruznov and M. Baldin;
- [Gas Analyzing System Based on Semiconductor Sensors for Providing Safety of Oil and Gas Pipeline Operations](#) by O. Tolbanov, O. Anisimov, V. Sachkov, G. Sakovich, Alexander Vorozhtsov, N. Eisenreich, and M. Krausa;
- [Inline Inspection from an Operator's Point of View](#) by Thomas Huwener;
- [Remote Detection of Leaks in Gas Pipelines with an Airborne Raman Lidar](#) by Sergey M. Bobrovnikov, Ilia B. Serikov, Yuri F. Arshinov, G. Sakovich, Alexander Vorozhtsov, and N. Eisenreich;
- [Emergency Shut-Down Valve for Gas Pipelines](#) by Alexander Vorozhtsov, V. Arkhipov, and I. Plekhanov; and,
- [Fatal Gas Explosion of a Residential Building: Three Levels of "Lessons Learned"](#) by I. Wieser, B. Schneider, and H. Oppenheim.

And in the Viewpoints section of this special edition of Strategic Insights, we present the following articles on emerging zones of resource conflict:

- [Resource Wars: Energy, Resource Conflict, and the Emerging World Order](#), an interview with Michael T. Klare
- [Cold Front Rising: As Climate Change Thins Polar Ice, a New Race for Arctic Resources Begins](#) by Barry Zellen; and,
- [The United Nations Africa Union Mission in Darfur—UNAMID](#) by Glen Segell.

As Michael Klare explains in his interview with Strategic Insights, "Virtually the entire planet has been scoured in the search for valuable sources of energy and minerals, and the rate of new discovery has dropped sharply in recent years. Moreover, most of the world's known reserves of oil, natural gas, copper, uranium, and other vital materials have been brought into production or are likely to be so in the not-to-distant future. This means that we are becoming ever more dependent on a finite supply of critical materials at a time when the global demand for these resources—driven, in part, by the rise of China, India, and other newly-industrialized countries—is expected to soar. Under these circumstances, all of the conditions that might have prompted conflict over resources in the past are likely to become magnified."

That's why, as Klare explains, "we are seeing the emergence of a new world power configuration in which the possession of energy and other key resources is the principal indicator of national strength, rather than the possession of military arsenals, as was the case in the Cold War era and in prior centuries." And "the more we look into the future," Klare believes, "the more a nation's relative standing in the world will be determined by such criteria."

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